

What Is Claimed Is:

1. A method for manufacturing a liquid crystal display device, comprising:
 - forming a gate line and a gate electrode on a substrate;
 - forming a gate insulating layer on an entire surface of the substrate including the gate line;
 - forming a semiconductor layer on the gate insulating layer above the gate electrode;
 - depositing a metal layer on an entire surface of the gate insulating layer including the semiconductor layer;
 - forming a mask pattern for patterning a data line and source and drain electrodes on the metal layer; and
 - forming a data line perpendicular to the gate line, and the source and drain electrodes by simultaneously removing portions of the metal layer with the mask pattern and removing a first thickness of the gate insulating layer.
2. The method according to claim 1, wherein the data line and the source and drain electrodes are formed by wet-etching the metal layer.

3. The method according to claim 1, wherein the semiconductor layer is formed by sequentially depositing a silicon layer and an impurity-doped silicon layer.
4. The method according to claim 1, wherein the metal layer includes molybdenum.
5. A method of manufacturing a liquid crystal display device, comprising:
 - forming a gate line and a gate electrode on a substrate;
 - forming a gate insulating layer on an entire surface of the substrate including the gate line;
 - forming a semiconductor layer on the gate insulating layer above the gate electrode by sequentially depositing a silicon layer and an impurity-doped silicon layer;
 - depositing a metal layer on an entire surface of the gate insulating layer including the semiconductor layer;
 - forming a photoresist pattern for patterning a data line and source and drain electrodes on the metal layer;
 - forming the data line and the source and drain electrodes by selectively removing portions of the metal layer using the photoresist pattern as a mask;

simultaneously performing a pre-ashing process to the photoresist pattern and removing a first thickness of a first portion of the gate insulating layer; forming an ohmic contact layer by selectively removing portions of the impurity-doped silicon layer using the photoresist pattern as a mask; and removing the photoresist pattern.

6. The method according to claim 5, wherein the first thickness of gate insulating layer is between about 100Å and about 500Å within step difference portions according to the gate line.
7. The method according to claim 6, wherein second portions of the gate insulating layer are removed to a second thickness of about $100\text{\AA}\pm20\text{\AA}$ during the step of simultaneously performing the pre-ashing process and removing the first thickness of the gate insulating layer
8. The method according to claim 5, wherein a first amount of SF₆ gas and a first amount of O₂ gas are provided during the pre-ashing process.
9. The method according to claim 8, wherein the first amount of SF₆ gas is greater than the first amount of O₂ gas.

10. The method according to claim 5, wherein the metal layer includes molybdenum.

11. A method of manufacturing a liquid crystal display device, comprising:

forming a gate line and a gate electrode on a substrate;

forming a gate insulating layer on an entire surface of the substrate

including the gate line;

forming a semiconductor layer on the gate insulating layer above the gate electrode by sequentially depositing a silicon layer and an impurity-doped silicon

layer;

depositing a metal layer on an entire surface of the gate insulating layer

including the semiconductor layer;

forming a photoresist pattern for patterning a data line and source and drain electrodes on the metal layer;

forming the data line and the source and drain electrodes by selectively removing first portions of the metal layer using the photoresist pattern as a mask;

forming an ohmic contact layer by simultaneously removing portions of the impurity-doped silicon layer using the photoresist pattern as the mask and removing a first thickness of the gate insulating layer; and

removing the photoresist pattern.

12. The method according to claim 11, wherein Cl₂ gas is used for etching the gate insulating layer during formation of the ohmic contact layer.

13. The method according to claim 11, wherein the metal layer includes molybdenum.

14. A liquid crystal display device formed by a method, comprising:

- forming a gate line and a gate electrode on a substrate;
- forming a gate insulating layer on an entire surface of the substrate including the gate line;
- forming a semiconductor layer on the gate insulating layer above the gate electrode;
- depositing a metal layer on an entire surface of the gate insulating layer including the semiconductor layer;
- forming a mask pattern for patterning a data line and source and drain electrodes on the metal layer; and
- forming a data line perpendicular to the gate line, and the source and drain electrodes by simultaneously removing portions of the metal layer with the mask pattern and removing a first thickness of the gate insulating layer.

15. A liquid crystal display device formed by a method, comprising:
 - forming a gate line and a gate electrode on a substrate;
 - forming a gate insulating layer on an entire surface of the substrate including the gate line;
 - forming a semiconductor layer on the gate insulating layer above the gate electrode by sequentially depositing a silicon layer and an impurity-doped silicon layer;
 - depositing a metal layer on an entire surface of the gate insulating layer including the semiconductor layer;
 - forming a photoresist pattern for patterning a data line and source and drain electrodes on the metal layer;
 - forming the data line and the source and drain electrodes by selectively removing portions of the metal layer using the photoresist pattern as a mask;
 - simultaneously performing a pre-ashing process to the photoresist pattern and removing a first thickness of a first portion of the gate insulating layer;
 - forming an ohmic contact layer by selectively removing portions of the impurity-doped silicon layer using the photoresist pattern as a mask; and
 - removing the photoresist pattern.

16. A liquid crystal display device formed by a method, comprising:

- forming a gate line and a gate electrode on a substrate;
- forming a gate insulating layer on an entire surface of the substrate including the gate line;
- forming a semiconductor layer on the gate insulating layer above the gate electrode by sequentially depositing a silicon layer and an impurity-doped silicon layer;
- depositing a metal layer on an entire surface of the gate insulating layer including the semiconductor layer;
- forming a photoresist pattern for patterning a data line and source and drain electrodes on the metal layer;
- forming the data line and the source and drain electrodes by selectively removing first portions of the metal layer using the photoresist pattern as a mask;
- forming an ohmic contact layer by simultaneously removing portions of the impurity-doped silicon layer using the photoresist pattern as the mask and removing a first thickness of the gate insulating layer; and
- removing the photoresist pattern.